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POWER

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Contents for June 28, 1932

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Building Services

BUILDING services receive a particularly good break in this number of *Power*. Four articles are specifically in this field: A department store plant; services in a large state hospital; hot water for heating the Cities Service skyscraper; heating buildings with refrigerating equipment.

IN ADDITION, glance through the following subject list for articles and items (with page numbers) along the lines of your special interests:

ELECTRICITY
Pilgrim State Hospital (956)

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Heating with Refrigeration Equipment (946)—Heating Skyscraper with Hot Water (953)—Pilgrim State Hospital (956)

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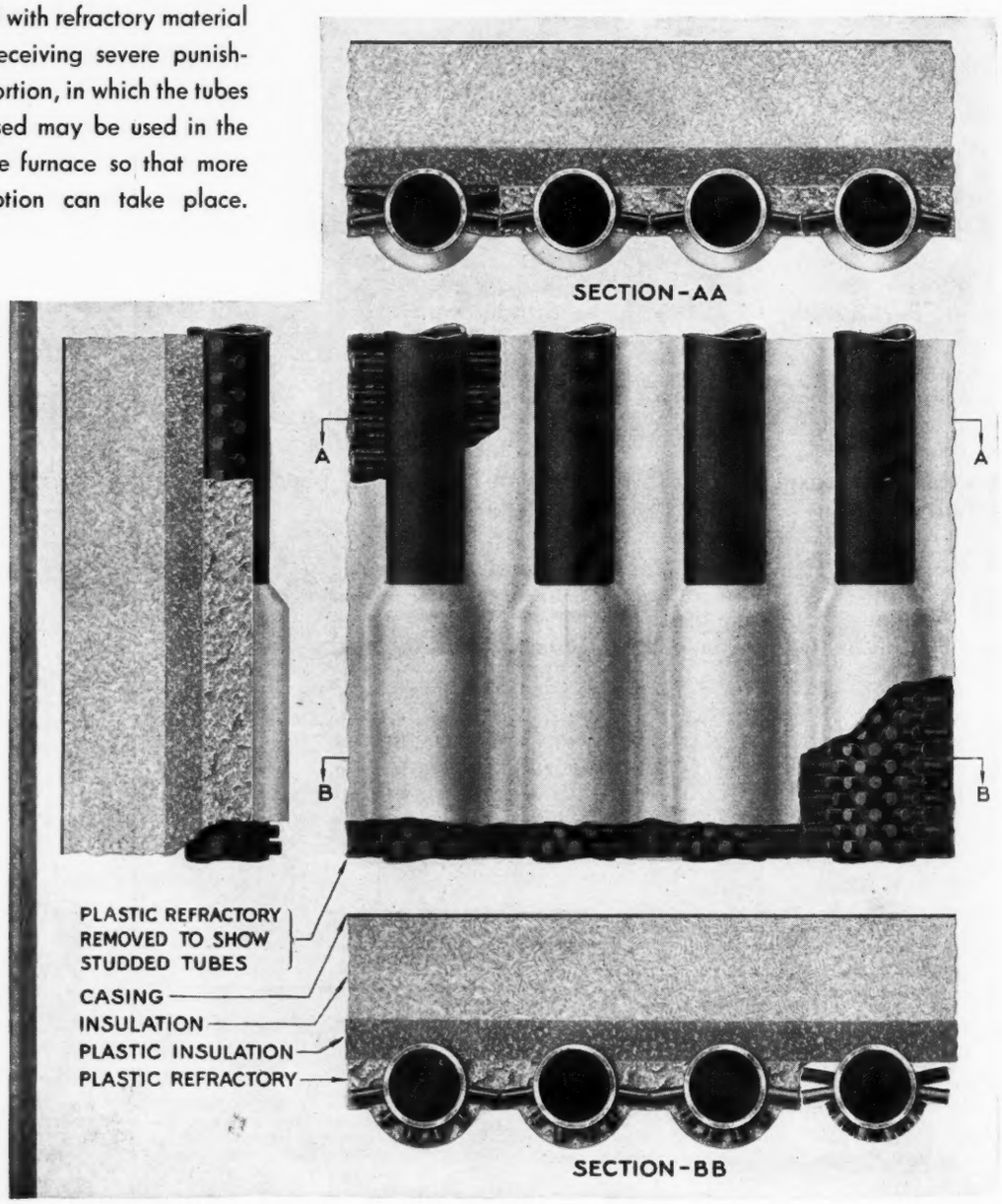
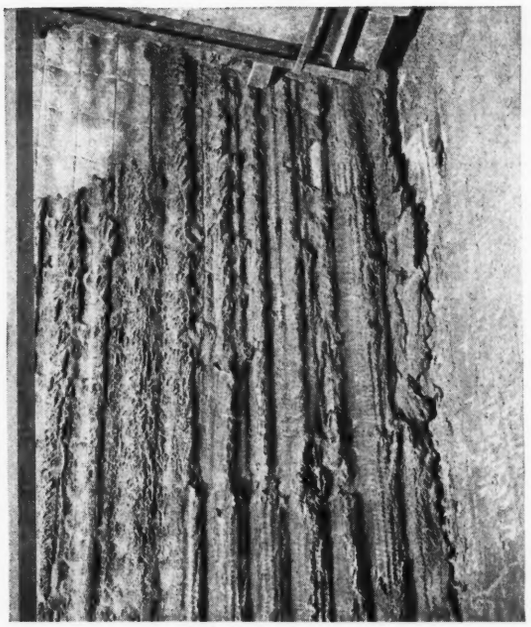
STEAM GENERATION
Pilgrim State Hospital (956)

STEAM PRIME MOVERS
Steam Turbines in U. S. (949)

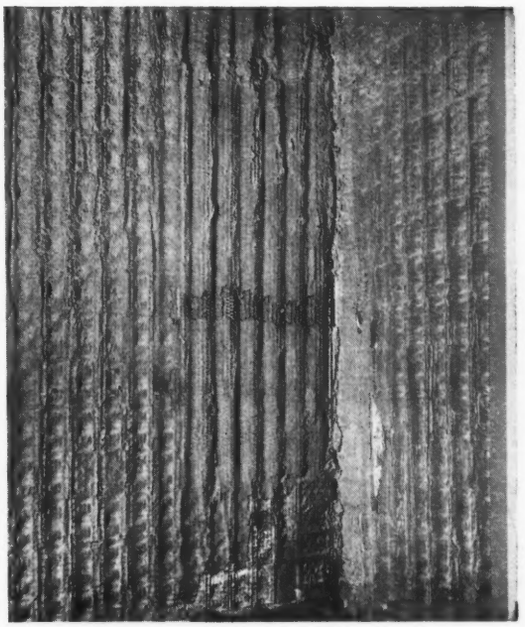
New and Important Developments in

Detail arrangement of Bailey Stud Tubes for a furnace wall. The lower portion is completely covered with refractory material for use in zones receiving severe punishment. The upper portion, in which the tubes are partially exposed may be used in the cooler zones of the furnace so that more rapid heat absorption can take place.





Upper part of a section of Bailey Stud Tube Wall under test showing tubes partially exposed for rapid heat absorption.



Lower portion of a section of Bailey Stud Tube Wall under test in a pulverized-coal slag-tap furnace. The furnace operated with a heat release of over 30,000 b.t.u. per cu. ft. per hr. burning low grade Illinois coals.

Bailey Water-Cooled Furnaces

THE BAILEY STUD TUBE WALL is a new development of far-reaching importance, which, by supplementing the block construction, greatly extends the range of conditions that can be economically filled by the Bailey Water-Cooled Furnace.

A distinguishing feature of the new wall structure is its simplicity. The water-cooling tubes are arranged in the usual manner but instead of being fitted with Bailey Blocks they are covered with refractory material which is held in place by studs welded to the tubes. The thickness of the refractory covering and the arrangement of the studs provide the desired rate of heat transfer. Thus the construction is simple and forms a rugged, and durable wall which is highly resistant to slagging.

The Bailey Stud Tube Wall has a high degree of flexibility of construction. Both its form and the character of the wall surface are adapted to suit the furnace requirements and the fuel burned. For example, the tubes may be bent to any desired radius to form arches and other curved wall surfaces. Also, where rapid heat absorption is desired as in the cooler furnace zones, the tube surface may be partially exposed, the studs and refractory being confined to the spaces between the tubes to fill the gaps and complete the wall. Bailey Stud Tubes may be used for complete or partial water cooling of new and existing furnaces either in combination with Bailey Blocks or alone as conditions demand.

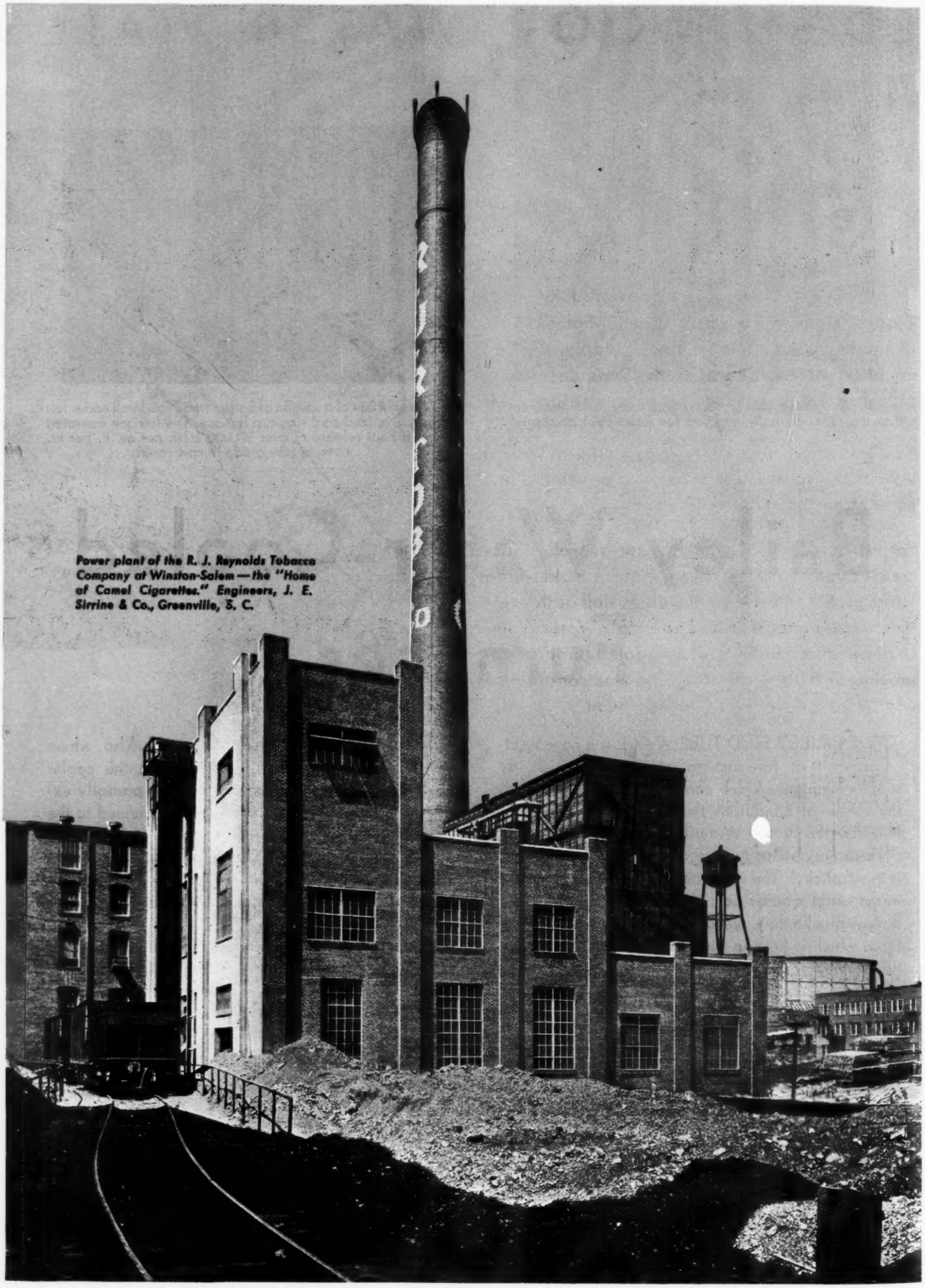
The new wall structure has been thoroughly tested in a slag-tap boiler furnace at a large mid-west power plant and was so successful in meeting the severe requirements of this pulverized-coal-fired installation that it has been adopted as a supplement to the constructions used for Bailey Furnaces.

Be sure to get the full story of the economic features of Bailey Furnace Constructions which are available for practically every type of furnace and all methods of firing. No obligation, just address The Babcock & Wilcox Company, 85 Liberty Street, New York, N. Y.

F257-T

BABCOCK & WILCOX

STEPPING UP CAPACITY AT



Power plant of the R. J. Reynolds Tobacco Company at Winston-Salem — the "Home of Camel Cigarettes." Engineers, J. E. Sirrine & Co., Greenville, S. C.

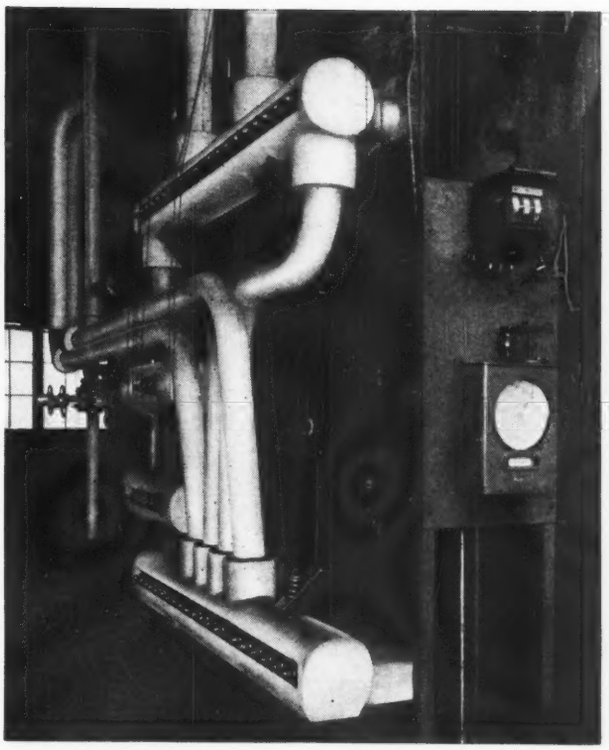
THE CAMEL FACTORIES WITH EDGE MOOR WATER WALLS

When growth of the R. J. Reynolds Tobacco Company plant at Winston-Salem, N. C. demanded an additional steam supply, existing facilities were reviewed and it was decided to purchase another Edge Moor Cross Drum Boiler of 665 h. p. to add to the three boilers of the same type purchased previously. A logical purchase in view of the satisfaction experienced with the first Edge Moor Boilers installed.

For increased capacity per boiler as well as decreased maintenance costs for these stoker-fired furnaces, the three original units as well as the new one, were equipped with Edge Moor Water Walls. Under each boiler is a water-cooled furnace employing 278 sq. ft. of bare-tube wall construction and 102 sq. ft. of armor-covered wall.

Edge Moor Water Walls—a natural development of engineers with long experience in the design and manufacture of steam generators—are engineered to suit the peculiar requirements of each individual installation.

Consult Edge Moor on your requirements. They will be glad to recommend and supply the type of water walls best fitted to your needs—to help you bring this added efficiency and protection to your steam generating equipment. Send for Catalog No. 70, recently issued, which describes Edge Moor auxiliary equipment in detail.



A view of one of the Edge Moor Boilers showing the Water Wall recirculating Tubes

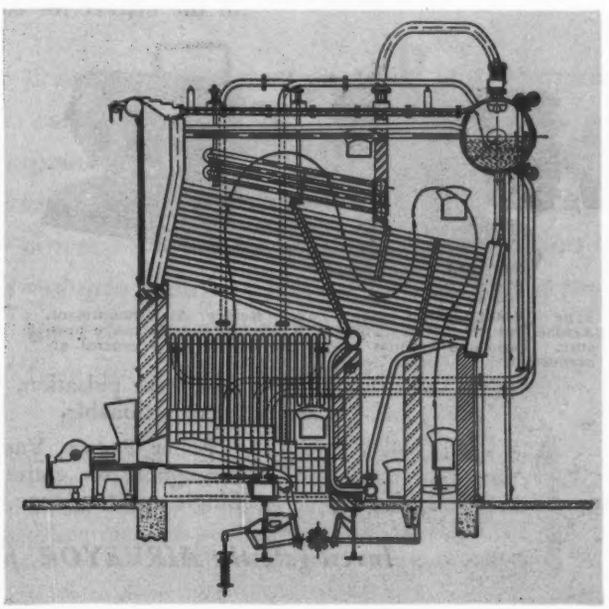


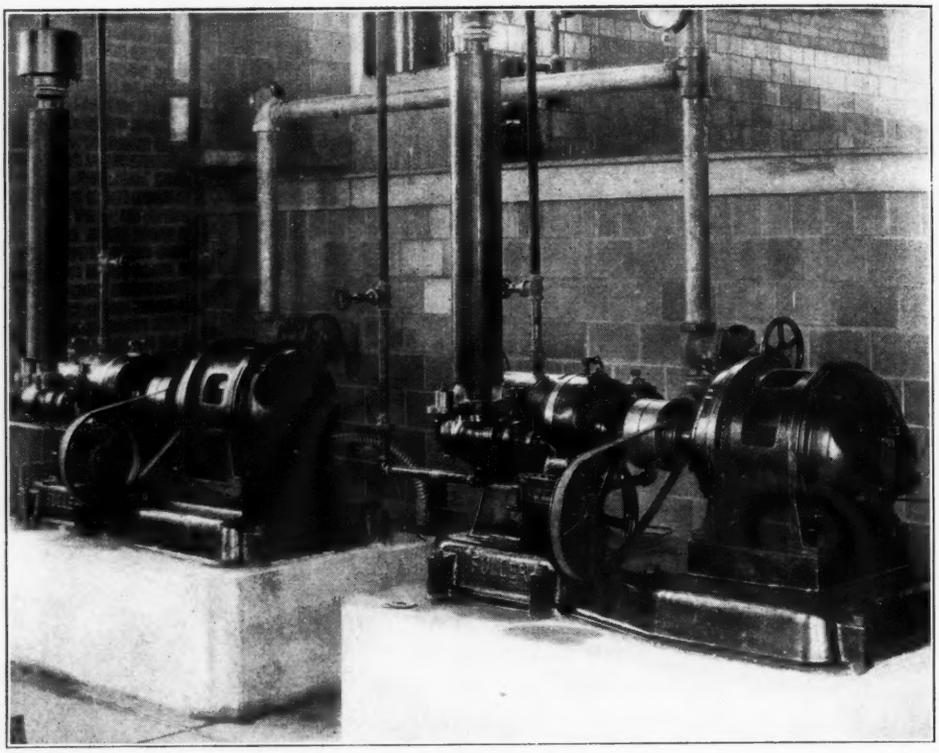
Diagram of boiler setting, showing water-cooled furnace below.

EDGE MOOR BOILERS

EDGE MOOR IRON CO.
EDGE MOOR, DELAWARE

Established 1868

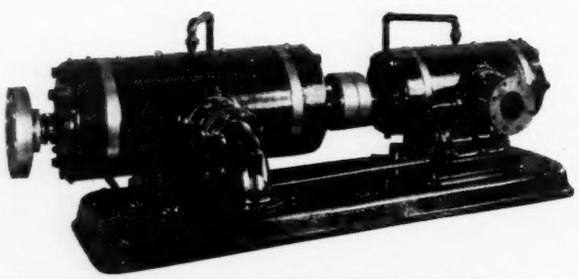
New York Chicago Boston Charlotte St. Paul
Los Angeles Houston Denver New Orleans



Two Type C-24 compressors. This size has an actual free air delivery of 90 C.F.M. at 50 pounds gauge pressure, operating at 1160 R.P.M.

ROTARY AIR COMPRESSORS ARE COMPACT AND ACCESSIBLE

This application of the design advantages of continuous rotary motion to the production of compressed air warrants careful investigation. Whether or not you are in the market for compressors or vacuum pumps, write for a copy of our new bulletin C-3. The mechanical features and operating characteristics of these interesting machines are fully illustrated and described.



Type C-150-80, two stage, Fuller Rotary Air Compressor. Actual free air delivery 750 C.F.M. at 100 pounds gauge pressure. Two-stage vacuum pumps are of the same general arrangement.

An impressive feature of Fuller Rotary Compressors is the extraordinary capacity in proportion to the space required for installation. The two-stage machine illustrated at the left is only 9 feet long; or 14 feet, complete with motor.

In many plants these machines are establishing new records for continuous service without mechanical attention. There are no valves or reciprocating motions to require the continual take-up of bearings.

The absence of vibration, together with compressed air flow free from pulsation, permits installations where the weight of other types would be objectionable.

Fuller Rotary Vacuum Pumps are similar in design. With good efficiencies throughout the entire range, they are particularly effective at the higher vacuums. Single and two-stage units are available for vacuums up to 29.75".

Investigate the AIRVEYOR, for unloading coal from cars and ships

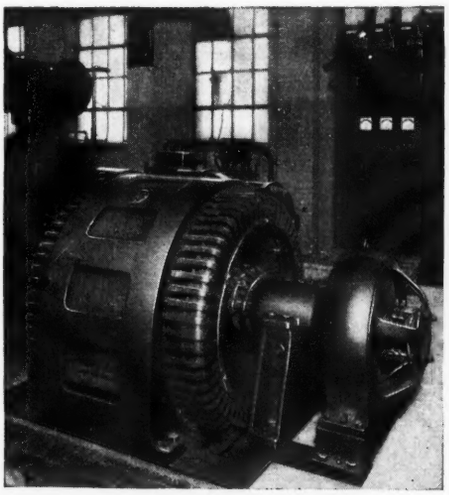
Fuller Company

CATASAUQUA, PENNA. U. S. A.

MORE EVIDENCE that power-factor improvement pays big dividends

Gross Annual Saving in Cost of Power		**$9564**
Chargeable to New Equipment		
Energy Consumed by Condenser	**$1572**	
Maintenance, Interest, and Depreciation	**$1910**	**$3482**
Net Saving in Power Cost		**$6082**
Total Cost of Condenser Installation		**$9552**

And so, this industrial plant—the Stockham Pipe & Fittings Company, of Birmingham, Ala.—will realize the return of its investment in about $1\frac{1}{2}$ years. The investment covers a General Electric 1250-kv-a. SYNCHRONOUS CONDENSER, which has raised the power-factor from 0.66 to 0.83.



1250-kv-a. G-E synchronous condenser installation at Stockham Pipe & Fittings Company, Birmingham, Ala.

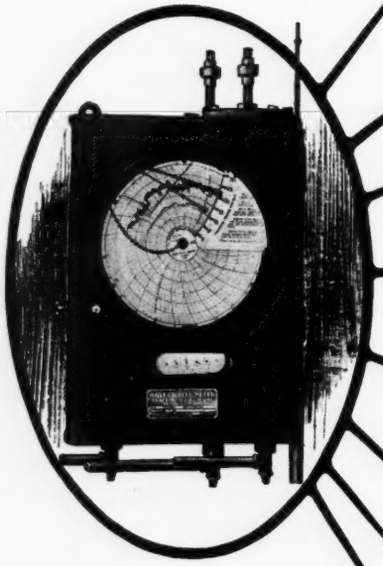
General Electric power-factor corrective equipment—capacitors, synchronous condensers, synchronous motors—will effect economy and improve plant operation. Our engineers can assist you by making studies necessary for the most practical solution of your power-factor problem and in the selection of the equipment. To obtain their services, or an interesting publication on this subject, address our nearest sales office or General Electric Company, Schenectady, N. Y.

G-E synchronous condensers are quiet, smooth, and efficient in operation. They are particularly applicable to voltage regulation, as well as to power-factor improvement. The standard line includes sizes from 100 kv-a. to 50,000 kv-a. They can be manually or automatically controlled.

108-12

GENERAL ELECTRIC

EIGHT DIVIDENDS . .
ONE BOILER METER



1 On boilers of 100 h. p. or larger, the Bailey Boiler Meter produces a notable saving in fuel by guiding the way to best combustion efficiency.

2 Deterioration of furnace wall refractories is decreased, since excessive furnace temperatures are prevented.

3 Boiler capacity increases, thereby postponing and sometimes eliminating the necessity of enlarging the plant.

4 One Bailey Boiler Meter fills a threefold need . . . it is a Combustion Guide, a Steam Flow Meter, and a Flue Gas Temperature Recorder.

5 All records are made on a single uniformly graduated chart permitting easy, timesaving comparisons of related factors.

6 The meter tells when the boiler should be cut out of service for tube cleaning or repairing of the baffles.

7 Reliable data and permanent records are furnished for the Cost Accounting System.

8 Each Bailey Boiler Meter is designed to fit the particular installation to assure maximum effectiveness.

These dividends may amount to hundreds of dollars yearly in your plant. Write for bulletin No. 43a, which gives examples of actual savings made by the installation of Bailey Boiler Meters.

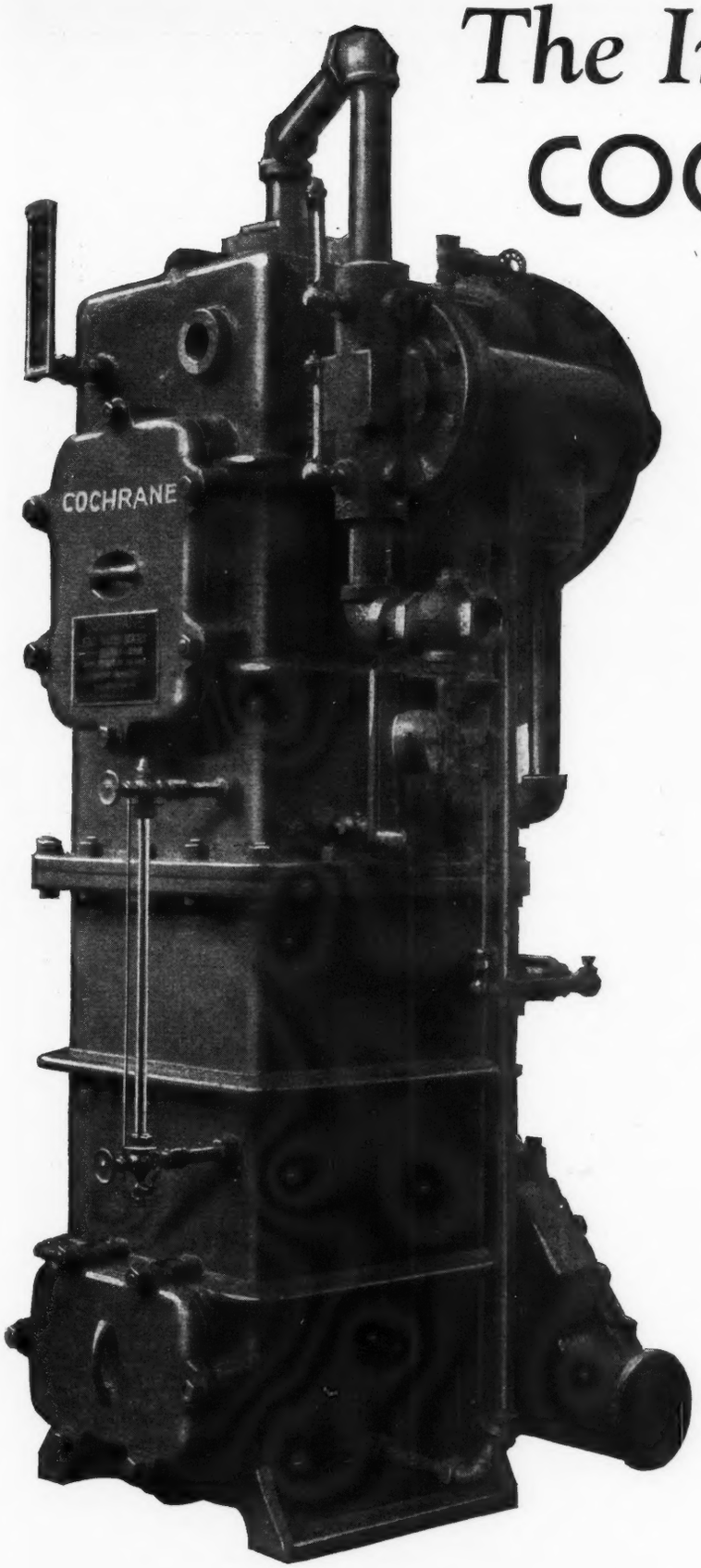
BAILEY METERS

D-7

BAILEY METER CO.

1036 IVANHOE ROAD CLEVELAND, OHIO.

Bailey Meter Company Limited, Montreal, Canada



The Improved COCHRANE DEAERATING HEATER

Costs little, if any, more than an ordinary open heater.

But it is *worth a great deal more,*—Oh my, yes!

It eliminates absolutely all oxygen corrosion of economizers, piping, boilers, turbine blades, etc. It heats the water right up to the temperature corresponding to the pressure to which the steam has been expanded; that is, there is no terminal temperature difference, or loss of temperature head. It operates perfectly under any pressure or vacuum, or under varying pressure.

It includes the regular open heater accessories, such as make-up regulator, etc., and can readily be combined with a storage or surge tank, a V-notch meter or a hot process softener.

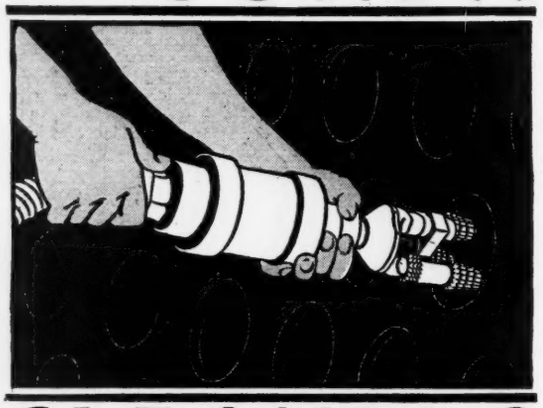
It is made in all capacities and for all pressures and in cast iron with machined or calked joints or in steel plate of riveted or welded construction.

COCHRANE CORPORATION

17th and Clearfield Streets, Philadelphia, Pa. H-34

Fast work on tube cleaning

LAGONDA



CLEANERS

Power and speed in a tube cleaner means quicker work — getting the unit back into production sooner, thus decreasing overhead and maintenance costs.

Lagonda cleaners have always developed power necessary for average tube cleaning work. When air consumption is a minor consideration, a Lagonda cleaner can be adapted to all requirements.

Lagonda can furnish the cleaner to meet your every need. Our recommendations are based on thirty years' experience.

ASK FOR CATALOG X-12.

X-1484

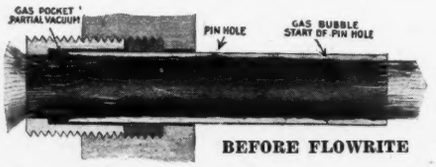
The Lagonda Mfg. Co.
SPRINGFIELD, OHIO
FUEL SAVING SPECIALISTS
NEW YORK, CHICAGO, PHILADELPHIA, BOSTON, PITTSBURGH, CLEVELAND, CINCINNATI, DETROIT, SYRACUSE, BALTIMORE, ST LOUIS, KANSAS CITY, DENVER, DALLAS, ATLANTA, SAN FRANCISCO, MONTREAL, LONDON

Makers of Lagonda Reseating Machines for boiler caps and headers, Lagonda Tube Cutters, and Lagonda Cleaner Feeding Device for curved tube boilers.

SAVE CONDENSER TUBE RENEWALS

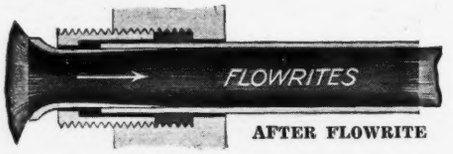
USE "FLOWRITES"

Eliminate erosion in Entrance Ends of New Condenser Tubes



BEFORE FLOWRITE

—illustrated above, see how the pocket at the end of the condenser tube collects gas, resulting in constant corrosive action, and pin holes that quickly ruin the whole tube end.



AFTER FLOWRITE

—condenser tube end has no pockets where corrosion can start. Flow is smoothly directed so less power is required, erosion eliminated and pin holes ended. Note that the wear takes place at the end of the "Flowrites" and they may be easily removed and new ones installed, thereby protecting the tubes.

We handle a plug—CONCO—which cleans tubes when FLOWRITES are installed.

Write for bulletin and list of users.

Condenser Service & Engineering Corp.
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for every industrial and domestic use

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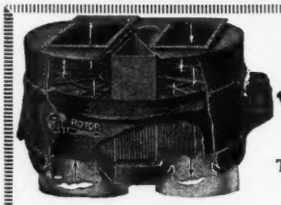
SPRINGFIELD BOILERS
SECTIONAL-ALL STEEL
ALL SIZES-ALL PRESSURES
SPRINGFIELD BOILER CO
SPRINGFIELD, ILLINOIS



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CONTINUOUS REGENERATIVE COUNTERFLOW

Recovers 70% stack heat, raises CO_2, improves combustion—*Bulletin on request.*
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Works, Wellsville, N. Y.

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Steam Turbines, for all speed and steam conditions capacities up to 15,000 h.p. Catalog D40.
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Flexible Couplings. Catalog K40.
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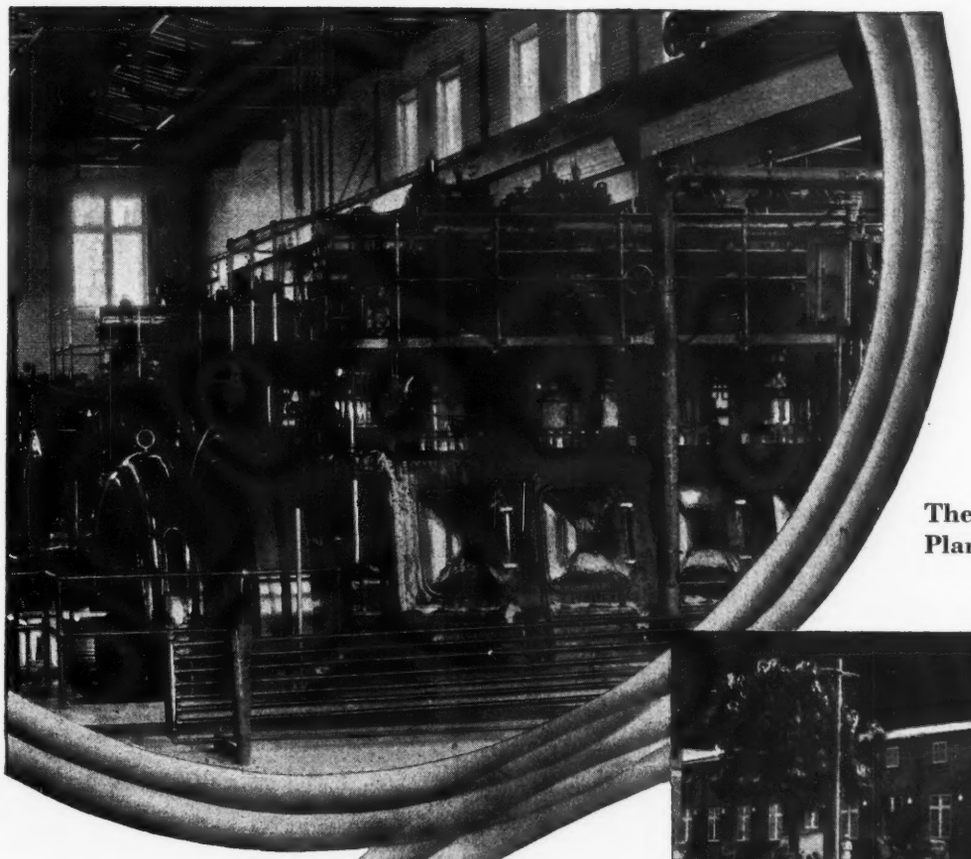


The City Light and Power Plant of Sioux Falls, S. D.

16 YEARS WITH TEXACO LUBRICATION

The Diesel engines of the City Light and Power Plant of Sioux Falls, South Dakota, have been lubricated with Texaco Ursa Oil for the past sixteen years. The Chief Engineer is enthusiastic in his recommendation of Texaco Ursa Oil for 100 per cent lubrication and low oil consumption. It is an outstanding example of efficient Diesel operation, low power costs and low upkeep.

In this plant there are 2 Busch-Sulzer Diesel engines of 165 h.p. at 276 r.p.m. and a McIntosh-Seymour 400 h.p. unit operating at 200 r.p.m., the latter in service for 6 years. There is also a 200 h.p. Holly triple expansion steam pump which has been continuously lubricated with Texaco Cylinder Oil. Texaco Ursa Oil is used for the crankcase bearings.

The experience in this plant, as in hundreds of others throughout the United States, shows what can be expected with Texaco lubrication. Better Diesel operation, lower costs and freedom from trouble are assured. Texaco Lubricants and the complete cooperation of experienced Texaco lubrication engineers offer an exceptional service. Write The Texas Company. Find out just what this Texaco service can do for you.

THE TEXAS COMPANY · 135 East 42nd Street, New York City

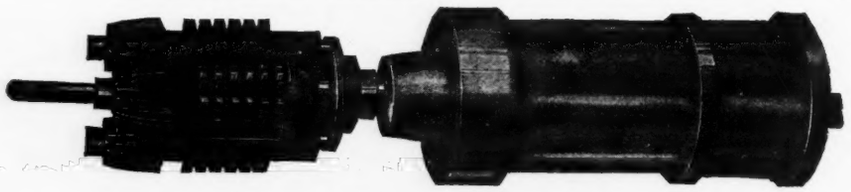
TEXACO

REG. U.S. PAT. OFF.

TEXACO LUBRICANTS

Four Cleanings a Year May Be Cheaper Than One

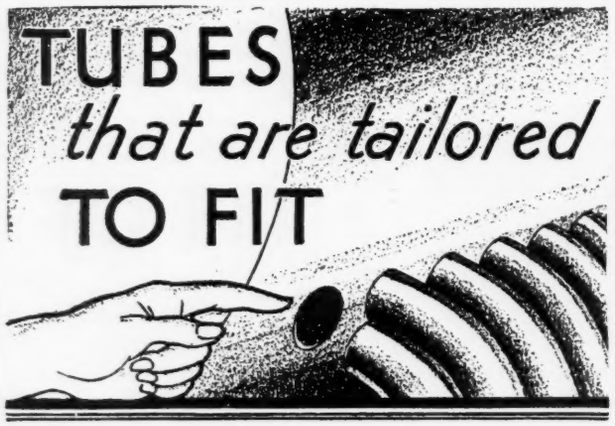
The average cleaning time per boiler is reduced by more frequent cleaning and more uniform efficiency of the boiler is maintained.



Roto 4" Heavy Duty Air-Driven Tube Cleaner

Roto Cleaners can also be furnished for various sizes and types of tubes.

THE ROTO COMPANY, Sussex Ave. and Newark St., NEWARK, N. J.



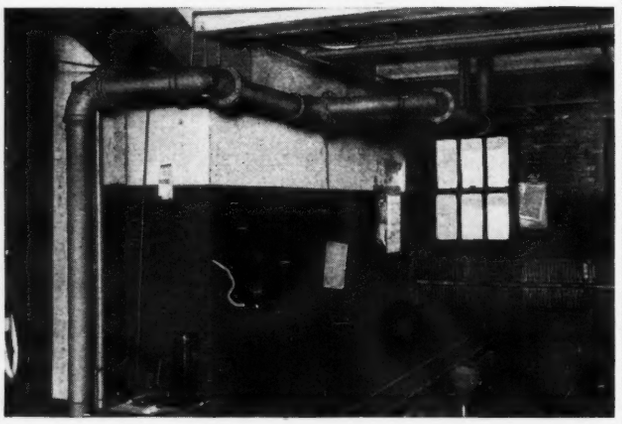
Save time by dealing with the Boiler Tube Company of America. Not only because they have "The World's Fastest Boiler Tube Service" but also because their experience in bending to special shapes assures you of getting tubes that fit perfectly at *both* ends . . . This means time saved in installation. Write at once to . . .

BOILER TUBE COMPANY OF AMERICA

3126 PREBLE AVE. • PITTSBURGH, PA.

NEW YORK CHICAGO

NO-OX-ID IRON RUST
The Original Rust Preventive



Water Lines, Ventilators, Skylight Frames and Sprinkler Pipes

This modern garage has protected all metal surfaces from rust with NO-OX-ID FILLER RED. Inspect your own equipment. See whether it is adequately protected. NO-OX-ID FILLER RED is an excellent primer over which paint may be applied. It offers a perfect bond for paint (especially aluminum) while beneath the surface the FILLER remains a plastic, protective rust inhibitor. In many places the FILLER can be used without paint. Inquiries invited.

DEARBORN CHEMICAL COMPANY

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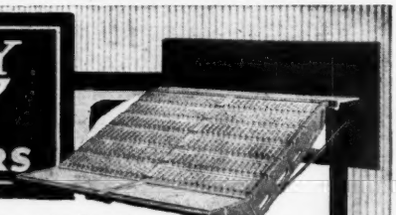
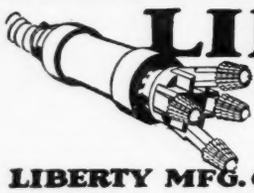
KELLY HAND STOKERS



Clinkers never bother the fireman with a Kelly Improved Hand Stoker. The shearing action of the grate breaks them up and helps maintain a clean fire at all times.

KELLY FOUNDRY & MACHINE CO.
Goshen, Indiana

Est. 1867



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In the field of water treatment, the success of sodium aluminate has led many chemical companies to produce and recommend this material. But sodium aluminate is not a magic cure-all. Its use may bring notable economies—but only when applied under the supervision of trained men.

Two facts are important in considering the use of sodium aluminate for boiler water treatment. First, this company pioneered the application of this product and has many years of production experience as well as its affiliation with the world's largest producer of aluminum to back up the quality of its material. Second, even more important, this company has on its staff the men who have developed the technology of using sodium aluminate in boiler water treatment. The leadership of this group of men is attested by the fact that this company owns all the worthwhile patents issued by the United States Government covering the applications of sodium aluminate in the field of water treating.

The K.W.S. system of water treatment is more than a chemical. It is the application of the ability and experience referred to above, combined with standard chemicals and high-grade, carefully processed sodium aluminate. This big plus-value is not expensive—it is included in the cost of your sodium aluminate. That cost is not high. It is so low that big economies result. Net cost is of course the real criterion of value —not price per pound. When you buy sodium aluminate remember that the service that goes with it is just as vital as the chemical itself.

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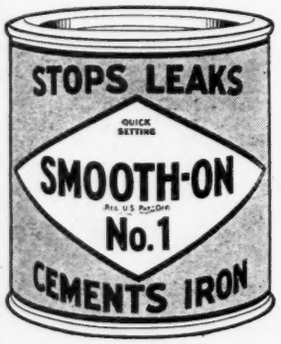

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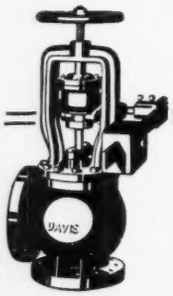

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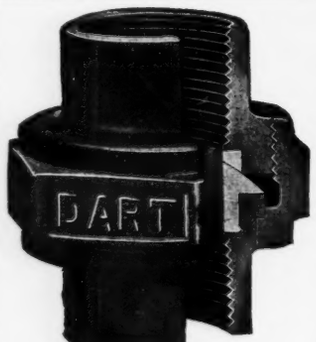

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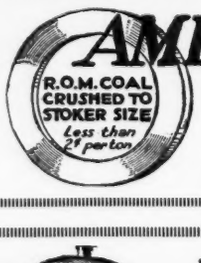

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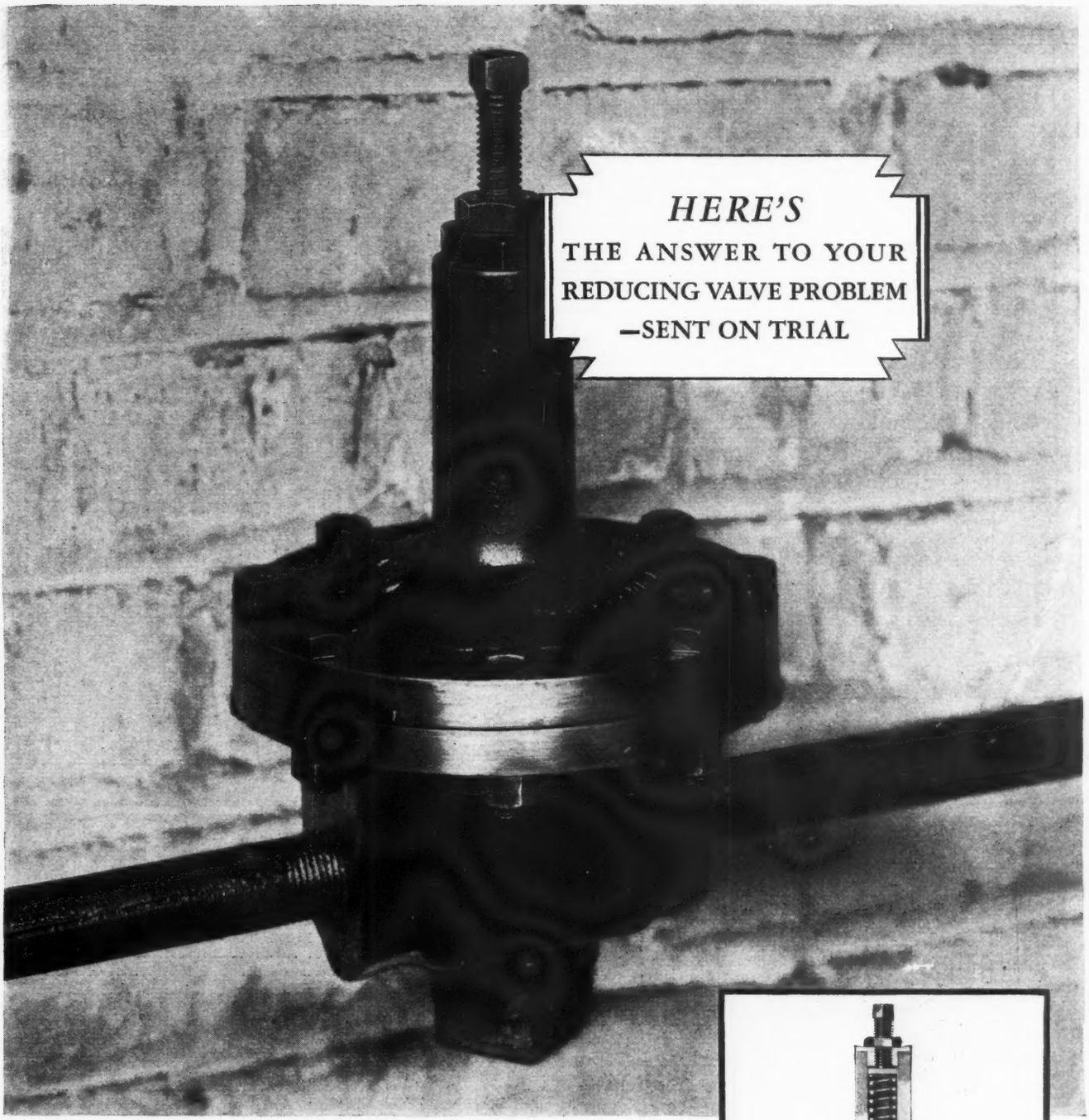

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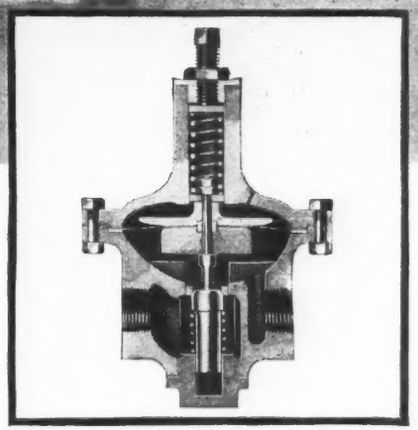

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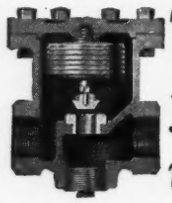

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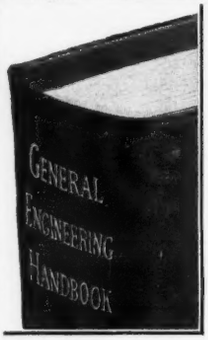

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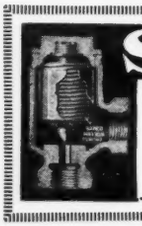

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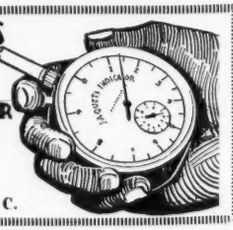

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2	125	900	2300	3	Cr.-Wh
2	100	900	230–2300	3	G.E.
1	75	600	220	3	Westg.
1	75	900	2300	3	G.E.
1	50	1200	220–440–2300	3	G.E.

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No.	Hp.	R.p.m.	Volts	Type
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1	500	900	440–2200	G. E. Syn.
1	350	900	2200/4000	Wh. syn.
2	300	600	445–2300	G. E. syn.
1	250	600	2200/4000	G. E. syn.
1	250	600	220–440	Westg. syn.
1	250	600	440–2200	G. E. syn.
3	200	514	4150–2300	G. E. syn.
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210 KVA., 3 ph., 60 cy., 440 volt, 225 r.p.m., Gen. Elec., type TRE, .8 PF. generator, direct connected to 19x20 Skinner unaflow engine.

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MAINTENANCE man, power machinery. Electrician, machinist, welder. Engineer's license. Age 35. Knows his stuff. PW-178, Power, 520 No. Michigan Ave., Chicago, Illinois.

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H.P.	*Volts*	*Make*	*Speed*
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200	2300-4000	G.E.	514
200	440-220	G. E.	600
150	2200-440-220	G. E.	514
150	220-440-550	G. E.	600
100	2200	Westghse.	900
100	2200	G. E.	720
100	550	G. E.	720
100	440-220	G. E.	720
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100	550	Westghse.	900
75	440-220	G. E.	600
60	440-220	G. E.	720

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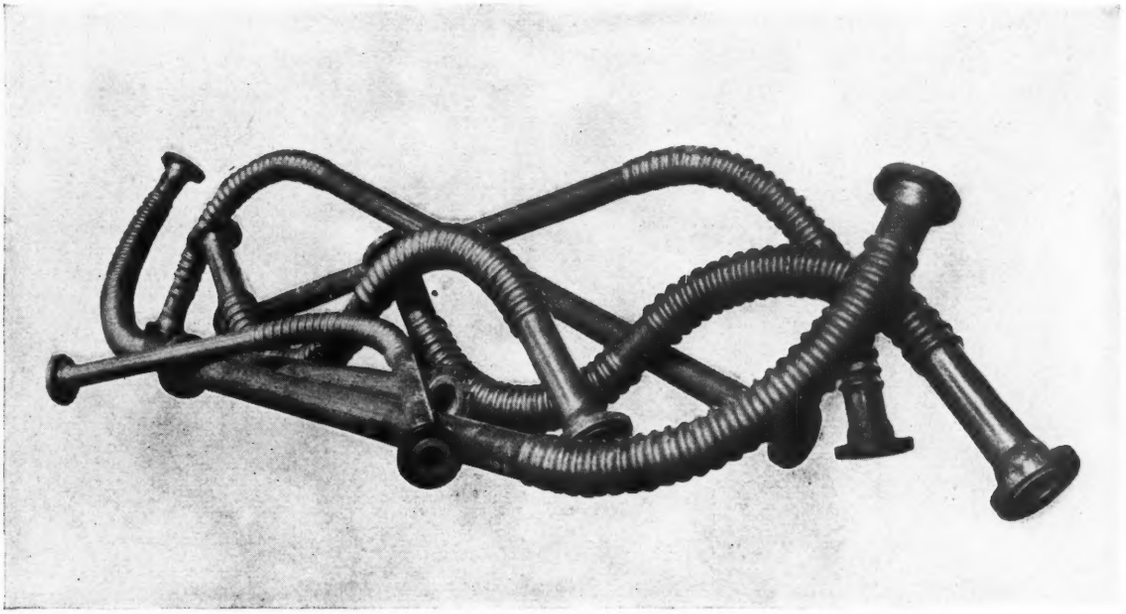

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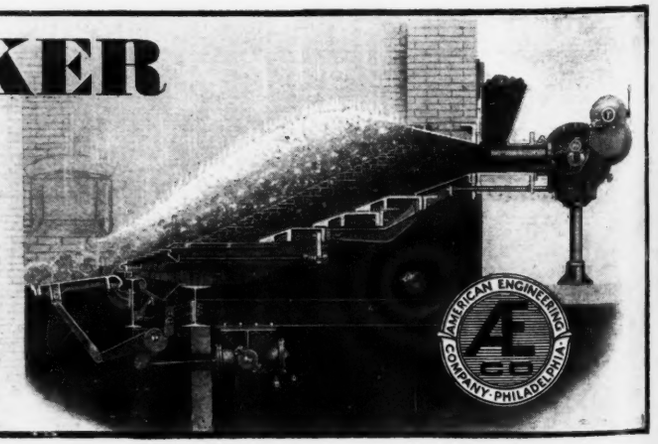

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